

March Financial Review

May 13, 2013



101 Fluids and Combustion Facility, MIP & TSC



ZIN Manager: Michael Johanson

ZIN Engineering Lead: M.O'Toole

ZIN Operations Lead: T. Wasserbauer

ZIN Integration Lead: C. Rogers

NASA Program Manager: Tom St'Onge

NASA Project Manager: Bob Corban (Kevin McPherson)



SpaceDOC 101 encompasses the International Space Station (ISS) Fluids and Combustion Facility (FCF) Project and its initial payloads, Light Microscopy Module (LMM) and the Multi-user Droplet Combustion Apparatus (MDCA) have been launched and the flight units are installed on the ISS. The Flight units on the ISS, as well as the units on the ground (Ground Integration Units and the Engineering Development Units) need to be operated and maintained. This Delivery Order is for the operation of the FCF racks on orbit and on the ground, resolution of any anomalies, evaluation of trends, software upgrades, hardware obsolescence evaluation, new hardware development to support future capabilities, verification, and training the crew and operators on the hardware/software. Also, as new payloads are developed for the FCF, analytical modeling and engineering analysis of the interface will be required.



The CIR Flight Unit, along with MDCA, was delivered to the ISS by STS-126 (November 2008). The FIR Flight Unit along with the LMM were delivered to the ISS by STS-128 (August 2009).

Issue	Potential Impact	Action Plan	Resolution Date
LMM Z-stage fail to operate	Loss of LLM Capability	<p>Perform crew operation to remove pin obstruction for LMM</p> <p>Perform crew operation to determine presence of an obstruction (complete)</p> <p>Perform powered troubleshoot investigation to determine if limit switch/enoder signal failure (complete)</p> <p>Perform analysis of primary failure mechanisms (complete)</p>	May 28 (tentative)
Methanol fuel line damaged during nominal crew activity for remove and replace of fuel reservoir	Delay to FLEX science Program	<p>OCR for crew procedure and schedule product submitted.</p> <p>Expedite request made through MSFC POM office and LIS</p>	Complete
HRDL/Rack Lock –ups	Loss of HRDL downlink capability	<p>Develop software patch that eliminates HRDL disk writes to /sd0. This resolves the root cause of the file allocation table conflict</p> <p>Procedure work-around implemented successfully to allow operations</p>	Complete

- **FLEX Science**
 - Initiated FLEX Science Xenon Test Matrix
 - Completed and down-linked 9 test ignitions
- **ACE Science**
 - Performed FIR IOP/FSAP disk maintenance operations in prep for ACE-M-1 ops
- **Facility Operations**
 - Complete the CIR FOMA on-orbit calibration
 - Complete troubleshoot/install of the MDCA methanol fuel line
 - Perform failure investigation/troubleshoot of LMM Z-stage failure. Determined cause as interference with guide pin
- **Safety**
 - Released the CIR Re-certification SDP (Calibration update)
 - Update the rack level CIR Hazard document CIR-DOC-3850 to reflect PSRP comments to the GCIP SDP
- **Software**
 - Completed verifications for the FCU CSCI with update for GCIP support
 - Released IOP CSCI with update to eliminate HRDL processor write/conflict on \SD0
- **Integration**
 - Released Systems Engineering Plan, project schedule and design concept LMM/Petri experiment
 - Continued draft development of the FIR IDD update with LMM interfaces
- **Hardware deliverables**
 - Initiated top level electrical harnessing for the LCB spare
- **IPSU-G**
 - Initiated detail/fabrication design drawings for IPSU-G EM design
 - Initiated electrical schematic for the IPSU-G custom board designs

2013 Deliverables List

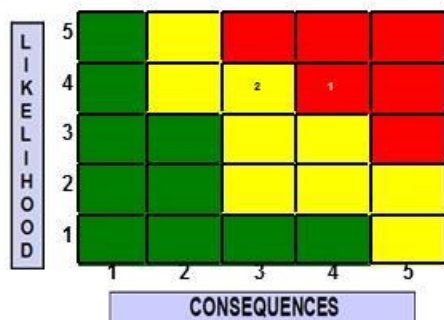
101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA

Deliverable	Planned	Actual	Note
GCIP flight unit	Mar-13	May-13	HTV delivery moved to May 8 th
IPSU/Camera SRR Presentation Package	Mar-13	Apr 13	
MDCA Avionics Package spare	Apr-13		Assembly and test completed. Final GIU functional validation planned in May
LMM Control Box spare (No Environmental)	Apr-13		Assembly complete project Aug. Verification complete project Dec
IPSU Analog repair (SN 2001)	Apr-13		Completion projected May
IPSU-G C-Specification (draft)	Apr-13	Apr-13	
LMM Camera Procurement Specifications	Apr-13	Apr-13	
IPSU spare - Remora	May-13		thermal cycle May
MDCA Color Camera spare	May-13		vibe planned May
IRR GC Filter (3)	May-13		
IRR Vent Filter (3)	Jun-13		
FCF Obsolescence Plan and Safe Life Analysis	Jun-13		
QD Lubrication Kit (if required)	Jul-13		
Spare Hoses (4)	Jul-13		
Spare Cables (7)	Sep-13		
IPSU/Camera Pahse I/II Safety	Sep-13		
NdYAG Development Assessment	Sep-13		
IPSU/Camera PDR Presentation Package	Sep-13		
WFCA Controller (2)	Oct-13		
FOMA Re-Circulation Pump	Nov-13		
GC Manifold Test Unit	Nov-13		
EPCU Rack Power Switch	Dec-13		



FCF Sustaining Engineering

Task Level Risk Assessment



Criticality

L x C Trend

High

Decreasing (Improving)

Med

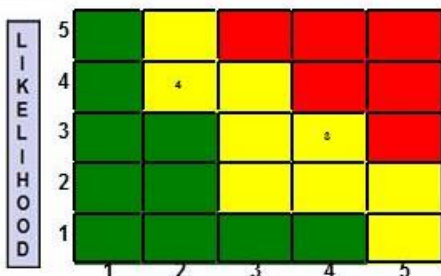
Increasing (Worsening)

Low

UnChanged

* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-035 Technical O'Toole	FOMA high pressure limit switches life exceeded prior to ISS end-of-life in 2028	Given that CIR operations to 2028 exceed the operational life life of FOMA high pressure limit switches then CIR life may end prior to ISS end-of-life.	4	4	Mitigate: The FCF team will perform a study to implementspares and develop a procedure to remove and replace PS-5. The FCF team will developground procedure to periodically actuate PS-1, PS-2, PS-3, PS-4, and PS-7. Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned. 03/20/13 - The current plan is to show that the FOMA high pressure limit switches' life will meet the "2028 End of Life" requirement. ECD: 12/31/2013
FCFSE-037 Technical O'Toole	FOMA GC supply manifold reliefvalves do not meet the 2028 ISS life extension	Given that FOMA GC supply manifold relief valves have operational life-times that do not meet the 2028 ISS life extension; then there is the possibility that the CIR GC system will not be available through ISS end-of-life.	4	3	Mitigate: The FCF team will perform a study to assess options to re-certify the GC supply manifold relief valves by verifying relieffunction or development of a remove an replace option. Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been



Criticality



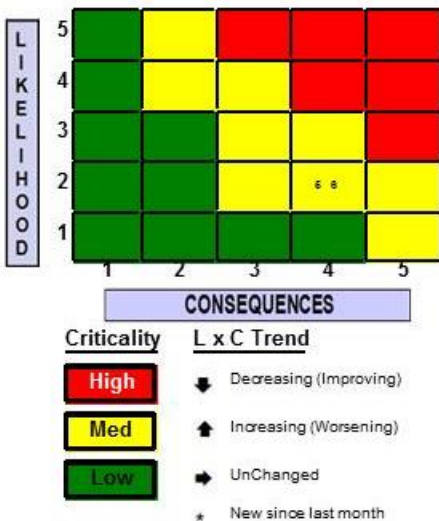
L x C Trend

- Decreasing (Improving)
- Increasing (Worsening)
- UnChanged
- New since last month

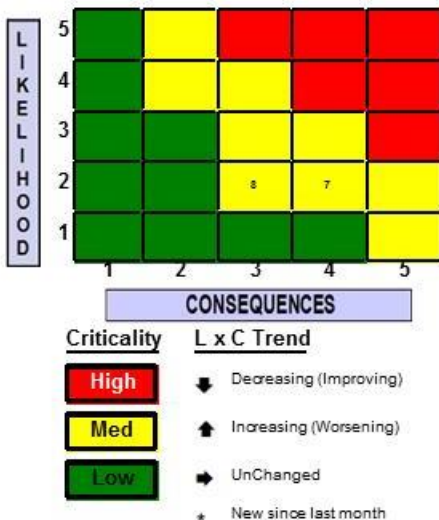
Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-036 ➔ Technical O'Toole	CIR sparing plans do not meet life extension through 2028	Given that CIR sparing plans do not meet life extension through 2028 then CIR life may end prior to ISS end-of life.	3	4	Mitigate: Perform a formal sparing analysis for CIR based on projected utilization through 2028 Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned. ECD: 12/31/2013
FCFSE-034 ➔ Technical O'Toole	No approved CIR GCIP gas supply transducer calibration procedure	Given there is no approved calibration method for GC gas supply transducers PT-19, PT-20, or PT-24 then there is the possibility that the GC system will not be allowed to operate.	4	2	Mitigate: The FCF team will perform a study to assess re-certification of the GC supply PT-19, PT-20, and PT-24. Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned 03/20/13 - The FCF team is investigating the possibility of removing the GCIP gas supply transducers as hazard controls with the PSRP ECD: 12/31/2013

Risk Matrix - FCF

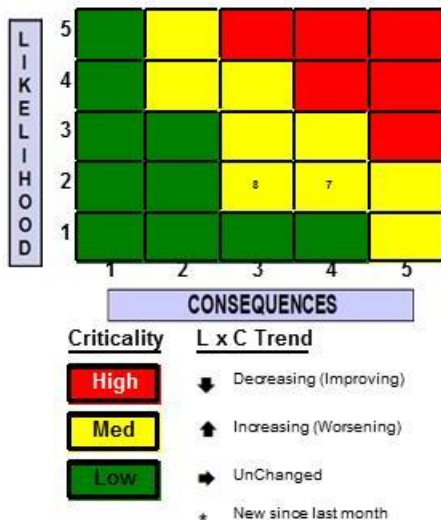
101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA



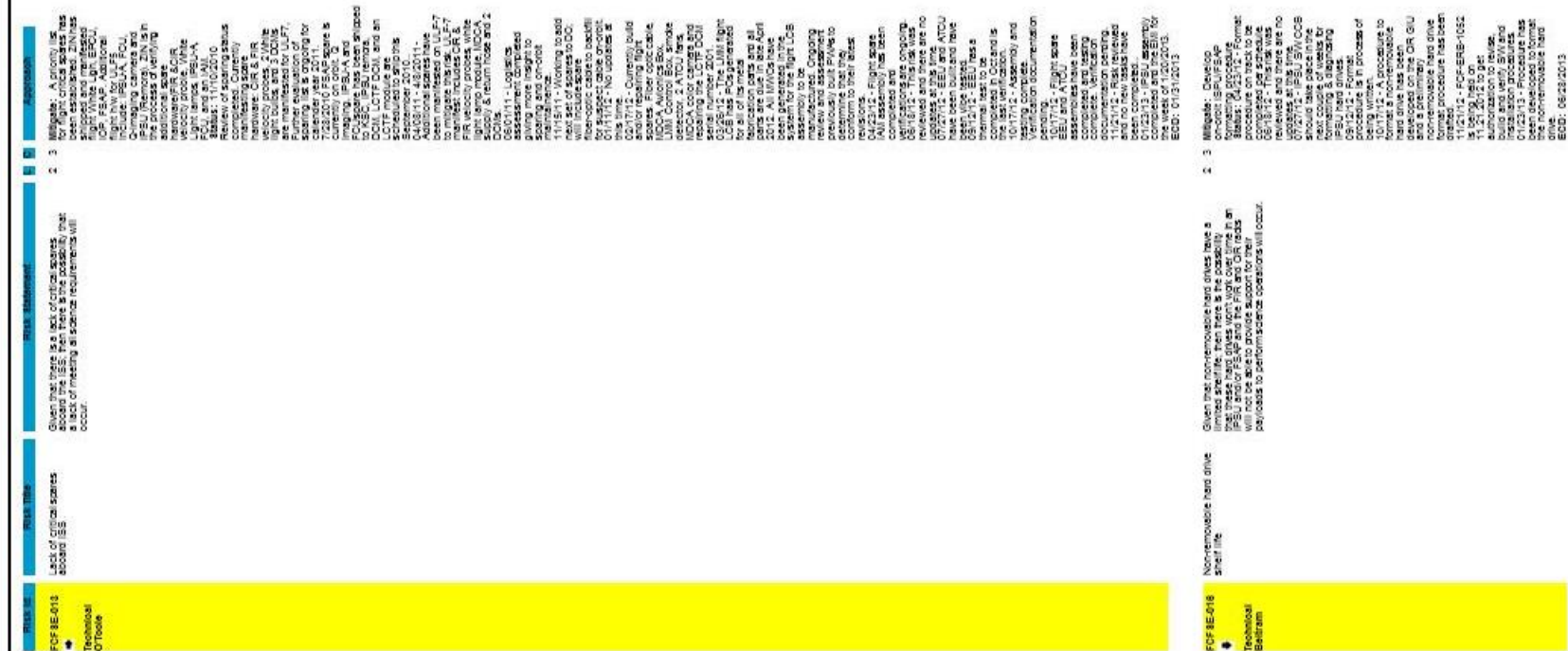
Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-030 ➡ Technical O'Toole	CIR combustion chamber life exceeded prior to ISS end-of life in 2028	Given that operation through to 2028 may exceed the assumptions identified in the Chamber safe-life analysis then CIR life may end prior to ISS end-of life.	2	4	Mitigate: The FCF team will assess chamber structure actual vs projected cycle life and update cycle projection through 2028 and perform updated safe-life analysis as required. Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned 03/20/13 - The CIR combustion chamber has been modeled and awaiting pressure history to finish the analysis. ECD: 12/31/2013
FCFSE-031 ➡ Technical O'Toole	CIR combustion chamber window life exceeded prior to ISS end-of life in 2028	Given that operations to 2028 will exceed the assumptions identified in the Chamber Window safe-life analysis, then CIR life may end prior to ISS end-of life.	2	4	Mitigate: The FCF team will assess chamber window actual vs. projected time at pressure and update usage projection through 2028 and perform updated safe-life analysis as required. Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned 03/20/13 - The CIR combustion chamber has been modeled and awaiting pressure history to finish the analysis. ECD: 12/31/2013

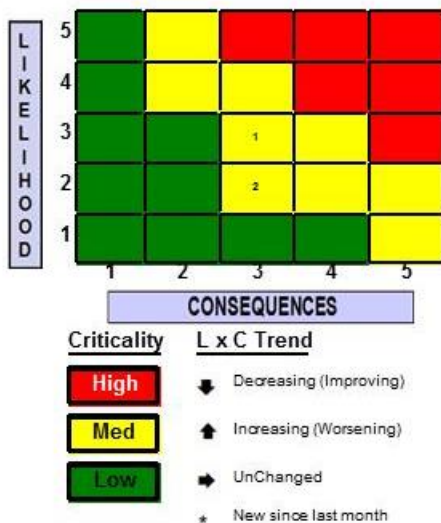


Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-033 ➔ Technical O'Toole	CIR FOMA solenoid valves internally leak	Given that CIR operations to 2028 will exceed the operational life of FOMA solenoid valves then there is the possibility that internal valve leakage will occur.	2	4	Mitigate: The FCF team will generate flight operational procedures to periodically establish positive closure indication of all FOMA solenoid valve inhibits. Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned ECD: 12/31/2013
FCFSE-014 ➔ Technical Beltram	IOP removable hard drive shelf life	Given that the IOP removable hard drives have a limited shelf life; then there is the possibility that these hard drives won't work over time and the FIR and CIR racks will not be able to provide support for their payloads to perform science operations will occur.	2	3	Mitigate: Implement a procedure to re-format the hard drive on-orbit to minimize loss of magnetic field encoding data on the disk. Status: 04/23/12 - Currently on track for the development of the formatting procedure. 06/18/12 - This risk was reviewed and there are no updates at this time. 07/27/12 - Formatting being developed. 09/12/12 - Documented format procedure is in process of being developed. 10/17/12 - A procedure to format an IOP removable hard drive has been developed on the CIR GIU and a preliminary IOP removable hard drive format procedure has been drafted. 01/23/13 - Procedure development has been initiated ECD: 08/30/2013



Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-033 ➡ Technical O'Toole	CIR FOMA solenoid valves internally leak	Given that CIR operations to 2028 will exceed the operational life of FOMA solenoid valves then there is the possibility that internal valve leakage will occur.	2	4	<p>Mitigate: The FCF team will generate flight operational procedures to periodically establish positive closure indication of all FOMA solenoid valve inhibits.</p> <p>Status: 01/23/13 - The FCF team is just getting started on this plan. Tasks have been identified and personnel assigned</p> <p>ECD: 12/31/2013</p>
FCFSE-014 ↓ Technical Beltram	IOP removable hard drive shelf life	Given that the IOP removable hard drives have a limited shelf life; then there is the possibility that these hard drives won't work over time and the FIR and CIR racks will not be able to provide support for their payloads to perform science operations will occur.	2	3	<p>Mitigate: Implement a procedure to re-format the hard drive on-orbit to minimize loss of magnetic field encoding data on the disk.</p> <p>Status: 04/23/12 - Currently on track for the development of the formatting procedure.</p> <p>06/18/12 - This risk was reviewed and there are no updates at this time.</p> <p>07/27/12 - Formatting being developed.</p> <p>09/12/12 - Documented format procedure is in process of being developed.</p> <p>10/17/12 - A procedure to format an IOP removable hard drive has been developed on the CIR GIU and a preliminary IOP removable hard drive format procedure has been drafted.</p> <p>01/23/13 - Procedure development has been initiated</p> <p>ECD: 08/30/2013</p>





Risk Id	Risk Title	Risk Statement	L	C	Approach
TSC-004 ➡ Cost Beltram	Lack of support depth	Given that there is no more than 1 subject matter expert in the areas of TSC System administration, FCF Ground software, and FCF data post-processing, there is a risk that FCF will not be supported adequately to ensure mission success.	3	3	Mitigate: Cross train additional personnel to adequately support the TSC. Status: ECD: 04/30/2013
TSC-002 ➡ Technical Beltram	DICES III voice loop system obsolete	Given that DICES III system hardware is at end-of-life, there is a risk that voice loop services will not be available to support mission operations.	2	3	Mitigate: Transition all TSC PDs to the IVoDs voice loop system. Status: 12/19/12 - A list of GRC TSC PDs was submitted to the HOSC at MSFC to obtain user names and passwords, but this was put on hold due to concerns from GRC IT security. 03/20/13 - The DICES III voice loop system is now inoperable and most of the TSC PDs have used the new IVoDs voice loop system. ECD: 01/31/2013

102 Acceleration Measurement Program (AMP)

Engineering Lead Jennifer Keller & Ray Pavlik

NASA Program Manager: Tom St. Onge

NASA Project Lead: Kevin McPherson / Bob Hawersaat



SAMS Objective:

- Provide acceleration measurement systems that meet the requirements of the researchers on board the International Space Station.
- SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.

MAMS Objective:

- Provide acceleration measurement system that measures the Quasi steady and vibratory acceleration data in the 0.00001 to 100 Hz frequency range on board the International Space Station (ISS) vehicle

PIMS Objective:

- Provide acceleration measurement data to Principal investigators who conduct scientific research on board the International Space Station.
- The SAMS acceleration measurement system provides the raw data that PIMS uses to provide analysis to the Principal Investigators. SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.



Milestone Schedule

102 AMP (SAMS, MAMS, PIMS)

WBS	Milestone	Start	Baseline	Projected	Actual	Schedule Variance
1.8.9	SE Cable – at least 144 inches in length	7/12		12/12	1/13	Delivered for ATV4 launch
1.8.10	Spare TSH-ES	7/12		12/12	1/13	Delivered S/N 03 for ATV4 launch
1.8.10	TSH-ES 08	1/13		12/13		ERB being scheduled for May or June 2013 for SAMS-NCR-271

Issues and Concerns

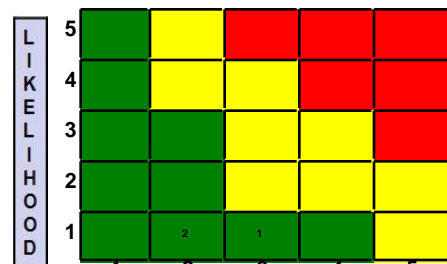
102 AMP (SAMS, MAMS, PIMS)

Issue	Potential Impact	Action Plan	Resolution Date
Network issues onboard delaying EE-F05 boot process	EE-F05 not booting	Work with DMC to help determine network issues.	Moved sensor back to EE-F05 and the network troubles have not appeared as of late. Continue to work with Express if/when it does occur.
Crew office cannot properly torque the SAMS MSG baseplate into the MSG WV	Not a good surface mount for the SAMS TSH-ES	<ol style="list-style-type: none"> 1. ECO the SAMS AIDD to call out the torque values for the baseplate 2. Request in writing the issue and why it cannot be performed. 	<p>9/15/09 – telecon held with MSG. It was decided that the fasteners on the SAMS baseplate for the TSH-ES will not be torqued. Integrated Safety Hazards are being updated on the MSG side, and SAMS is clarifying a SAMS safety hazard.</p> <p>TSH installed in MSG and working with SODI. Crew procedures said to be hand tight.</p>
TSH-ES S/N 08 failed the failed the SAMS TSH-ES Functional Acceptance Test	TSH-ES S/N 08 will not fly on ATV-4	<ol style="list-style-type: none"> 1. Work the NCR SAMS-NCR-271 	April 2013
Rack to rack network issues preventing SAMS booting EE in JEM.	No acceleration data can be collected in the JEM.	<ol style="list-style-type: none"> 1. Supporting MSFC and JSC in the troubleshooting efforts. 	Unknown
SAMS ICU laptop will not boot.	No acceleration data	<ol style="list-style-type: none"> 1. Replace the hard drives 2. Replace the laptop 	<ol style="list-style-type: none"> 1. 4/12/13 hard drives were replaced. It did not correct the problem. Suspect the hard drive controller in the laptop has failed. Working to prepare for a laptop swap. 2. 5/10/13 – laptop swap procedure was scheduled for 5/11, however due to other ISS issues and an EVA, crew time is not available and it is being rescheduled.



Acceleration Meas Proj (SAMS MAMS PIMS)

Task Level Risk Assessment



CONSEQUENCES

Criticality

L x C Trend

High

↓ Decreasing (Improving)

Med

↑ Increasing (Worsening)

Low

→ UnChanged

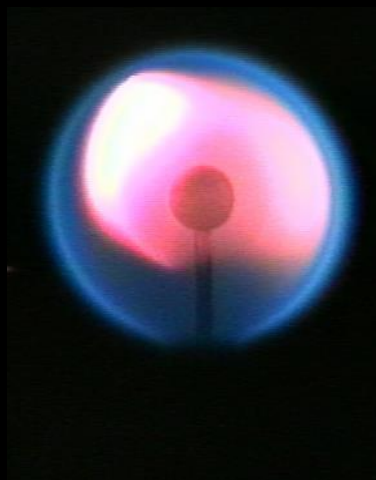
* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
AMP-001 ➡ Technical Keller	SAMS Sparing	Given that SAMS PCS hardware is not supported by the ISS program then there is the possibility that limited spares will become depleted and SAMS will not be operational on the ISS	1	3	Mitigate: SAMS Control Unit upgrade plan has been approved and is the implementation process. When complete, the spare pool will be vastly increased to include PCS/ISS laptop hardware available on the ISS. Status: ECD: 01/01/2014
AMP-002 ➡ Technical Keller	SAMS Fan Regulator	Given that the SAMS RTS Drawer #2 fan regulator frequency varies, there is a possibility that the fan regulator could fail.	1	2	Watch: SAMS data allows tracking of the fan frequency signature continuously. Should a fan regulator failure occur, the spare fan unit will be installed. Status: ECD: 01/01/2015

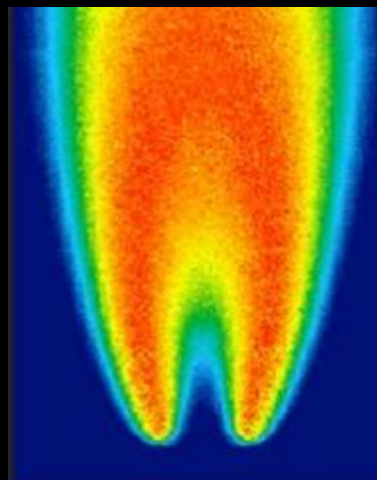
April 2013



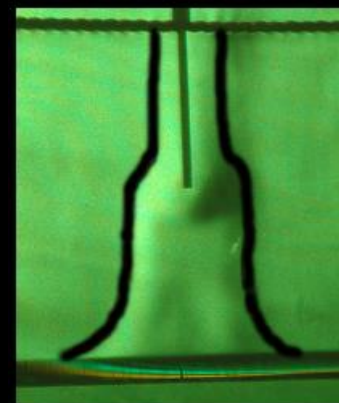
s-Flame
(drop test)



Flame Design
(drop test)



CLD Flame
(aircraft test)



2850 V
E-FIELD Flames
(1g schlieren)

Manager: Brian Borowski

NASA Program Manager: Tom St. Onge

NASA Project Lead: Mark Hickman

NASA Project Scientist: Dennis Stocker

SpaceDOC 110 encompasses the initial development phase of ACME including requirements and verification development and planning, flow system breadboard interface with existing FOMA breadboard and color camera trade studies to ultimately provide a new diagnostic capability for CIR. Work on Engineering Model design is included following completion of Preliminary Design Review in January of 2011.

Issues	Potential Impact	Action Plan	Resolution Date
There are some requests to the project from the Project Scientist to change Science Requirements	If these changes are approved the ACME budget and schedule will be impacted. The longer the decision process takes, the more severe the impact will be as the flight design continues moving forward	A review panel was convened by NASA Project Management to discuss the potential changes. Actions were distributed to help make a determination	?
Following functional testing of the E-Field Subsystem and EMI testing of the same subsystem some requirement compliance issues have arisen with regard to energy levels	Unable to meet science requirements	We have retested the subsystem in the EMI Lab again and further defined the issue	12/12
Still have not received requirements for BRE, due January 30, 2013	Will miss deliverable date of 1/2013	Project Scientist has provided preliminary changes to ISRD, mostly based on BRE but there is no authorization for use	?

- Continued build of EM Avionics Package
- Continued build of Flight Avionics Package
- Received large fabrication order for gas manifolds and camera filter barrel hardware
- Finalizing AVP harnesses and boards

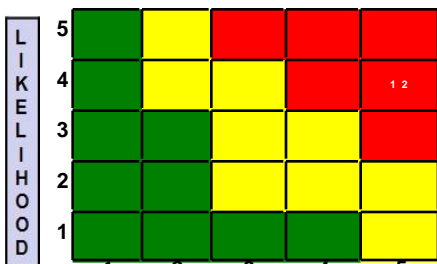
Milestone Schedule

110 Advanced Combustion via Microgravity Experiments

WBS	Milestone FY12	Credit	Start	Baselined	Projected	Actual	Scheduled Variance
1.3	Phase 2 FSR SDP	0% Complete	December 2013	December 2013	December 2013		0
1.1	CDR Presentation Package	0% Complete	November 2013	November 2013	October 2013		-1 month
1.2	Updated Science Compliance Matrix for BRE	0% Complete	January 2013	February 2013	June 2013		+4 month



DO 110 Task Level Risk Assessment



CONSEQUENCES

Criticality

L x C Trend

High

↓ Decreasing (Improving)

Med

↑ Increasing (Worsening)

Low

→ UnChanged

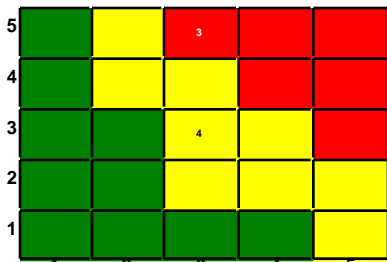
* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-024 → Cost Medved	ACME software could be re-classified as safety critical software	Given that NASA is reviewing all software to determine if it should be designated safety critical software; then there is the chance that ACME software will be designated as safety critical software and significant costs and schedule delays will occur.	4	5	Watch: Wait for the GRC group that met the week of 1/14/2013 to provide a consensus as to the approach for dealing with safety critical software. Status: 02/19/13 - Still waiting for the GRC group and their recommendations. ECD: 11/01/2013
ACME-022 ↑ Technical Mroczka	BRE science requirements	Given that there is not an updated SRD for BRE; there is a risk that the design for BRE will be deficient at the PDR milestone.	4	5	Mitigate: Project scientist to write the SRD. Status: 02/19/13 - RDR/PDR for BRE is scheduled for June 2013. 02/19/13 - ACME NASA Project Scientist to have a hardware requirements update to the SRD for tentatively 3/5/2013. ECD: 02/19/2013



DO 110 Task Level Risk Assessment

LIKELIHOOD



CONSEQUENCES

Criticality

L x C Trend

High

Decreasing (Improving)

Med

Increasing (Worsening)

Low

UnChanged

* New since last month

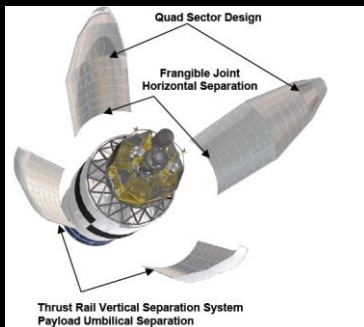
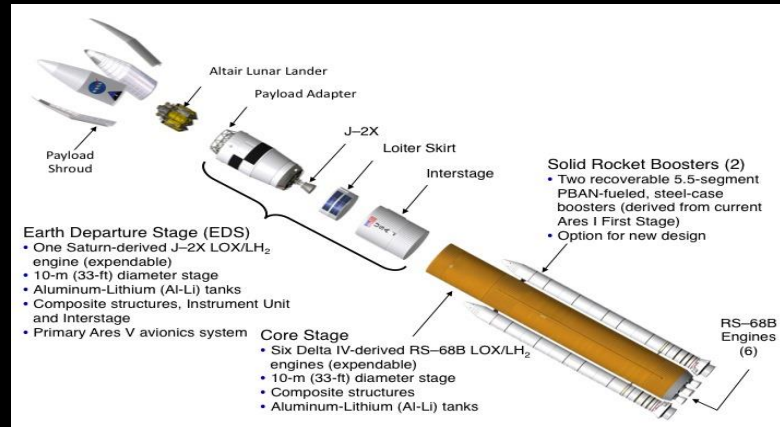
Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-014 ↓ Technical Rogers	IPSU to IOP image transfer rates take too long	Given that the current data transfer rates from the IPSU to the IOP is severely limited, transfer of ACME data may take an unacceptable amount of time and may reduce obtainable science for the allotted operational time on board ISS.	5	3	Watch: Need to keep an eye on this and follow up with the CIR team to keep updated on transfer improvements. Status: 12/13/11 - The FCF team has improved transfer rates by utilizing both IOP hard drives. The FCF team needs to provide quantitative data transfer rates. 03/27/12 - Risk reviewed by the ACME team and no status updates at this time. 05/08/12 - ACME RMWG has reviewed this risk and there are no updates at this time. 06/12/12 - Risk was reviewed at the monthly ACME RMWG and there are no updates at this time. 07/27/12 - Negotiations to fund an IPSU upgrade with increased data transfer rates has been initiated. 09/12/12 - Currently the IPSU to IOP transfer rate is approx 1.3 Mbps. The IPSU redesign concept calls for a direct downlink from the IPSU directly to ground with ISS downlink capability at 20Mbps. FCF project is submitting a funding request to support development of the concept. 09/18/12 - ACME needs a minimum of 10 Mbps. 10/16/12 - This was reviewed in the monthly RMWG with nothing new to report. 11/20/12 - The FCF NASA PM has obtained funding for a new IPSU design with the ACME data transfer rates as part of the design criteria. 02/19/13 - Risk reviewed and there are no updates at this time. ECD: 11/28/2013
ACME-023 → Management Hickman	TFP requirement change	Given that new TFP science requirements are added to the ACME SRD; then there is the chance that the ACME project schedule and budget will not be met.	3	3	Mitigate: The engineering team to provide the cost and schedule to NASA ACME PM. The Science team to provide justification for the changes in science requirements. Status: ECD: 03/29/2013

119 Ares V Payload Shroud Element (PSE) Project

ZIN Manager: Michael Johanson

ZIN Engineering Lead: Bill Dial

NASA Project Manager: Gerry Sadler



SpaceDOC 119 encompasses evaluation of potential manufacturing approaches focusing on the Heavy Lift Payload Shroud but not be limited to (e.g. can include other element composite dry structures). Approaches may include: existing composite manufacturing sites, MAF, and new sites. ZIN and our subcontractor Zero Point will identify needed composite manufacturing assets and capabilities to support current Heavy Lift Vehicle concept and associated requirements based on manufacturing assessments done by the NASA ESMD ACT project. The scope of the analysis shall include logistics and supply chain requirements.

Issue	Potential Impact	Action Plan	Resolution Date
None			

- Continued to work Fairing Structural Analysis and Design task.
- A no cost extension as extended the POP to 6/29/2013.

Milestone Schedule

119 Ares V Payload Shroud Element (PSE) Project

Milestone (Cal 10)	Baseline (Cal 10)	Projected	Actual	Schedule Variance
Payload Shroud Technology Development Plan	November 30, 2010	Nov 30, 2010	Nov 30, 2010	None
Preliminary Element Integration Assessment Report	January 15, 2011	Jan 15, 2011	Jan15, 2011	None
Manufacturing Implementation Plan	February 15, 2011	Feb 15, 2011	Feb 15, 2011	None
Final Element Integration Assessment Report	March 25, 2011	April 25, 2011	April 25, 2011	1 month no cost extension approved by Gerry Sadler
Provide a Basis of Estimate Bottoms Up Assessment of the Current SLS Shroud for metallic and composite 8.4 meter baselines.	June 6, 2011	June 6, 2011	June 6, 2011	None
Assessment of CPS Impacts on Payload Shroud	September 30, 2011	Sept 30, 2011	Oct. 13, 2011	Delivery slipped based on stop work due to lack of funding, slip was approved by Gerry Sadler
Fairing Basis of Estimate Updates 1. PPBE13 Update 2. Initial PPBE14 Update 3. Final PPBE14 Update	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012	Dec. 12, 2012	The PPBE schedule is determined by NASA and the dates of the deliverables are subject to change.
Analysis and Design Reports 1. SRR 2. SDR	1. Oct. 1, 2011 2. Feb 1, 2012	1. Feb 1, 2012 2. Feb 1, 2012	Oct. 4, 2012	SLS SRR & SDR are NASA determined dates. They are currently planned to be combined and held Feb. 15, 2012.
Payload Fairing Evaluation: Test Plans and Procedures	15 day prior to testing		N/A	Work is de-scoped
Delta IV Stage Integration Assessment	Jan 31, 2012	Jan. 31, 2012	N/A	Work is de-scoped

Study Delivery Order – No risks

DO-128 Communications, Navigation, and Networking Reconfigurable Testbed (CoNNeCT-2)



ZIN Project Lead: Ray Pavlik
ZIN Software Lead: Jennifer Keller

NASA Project Manager: Diane Malarik
NASA Deputy Project Manager: Mike Zernic
NASA GRC PI: Rich Reinhart
NASA GRC Deputy PI: Sandy Johnson

- An on-orbit, adaptable, Software Defined Radios (SDR)/Space Telecommunications Radio System (STRS)-based testbed facility to conduct a suite of experiments to advance technologies, reduce risk, and enable future mission capabilities on the International Space Station (ISS).
- DO-128 Scope of Work includes:
 - Performing configuration management activities, including software.
 - Remaining development of the CoNNeCT Flight and Ground System Software.
 - Integration with the Payload Operations Integration Center (POIC) and SCaN-provided SN, NEN, and NISN.
 - Sustaining Engineering and Operations of the Flight and Ground System.
 - Experiment Integration and Operation

Issue	Potential Impact	Action Plan	Resolution Date
None			

- Subtask A CM/DM
 - Reviewed, formatted, and released multiple Documents, Process Plans, Change Requests, and NCRs.
 - Processed for storage as-run Mission Operations Procedures and GIU documents.
 - Multiple Software CRs, new and (R1s), were processed preparing for the Upload #1 Gate #3 Review.

- Subtask B SE&I, Software, and Experiment Integration
 - GIU Maintenance (GRC-CONN-PLAN-0895)
 - Downloaded Avionics Files on a weekly basis.
 - Installed new Symantec Virus Definition Files and ran a full virus scan.
 - GIU TWTA Pre Amplifier – Assembly was completed.
 - Closed the following MWOs.
 - Harris SDR Characterization (MWO 080911MGA700-10).
 - JPL SDR S/W Upgrade (MWO 080911MGA700-17).
 - JPL GSE “Y” Cable S/N 002 connector replacement.
 - Assist with troubleshooting a problem using the EFEP during SCA_N testing set-up. The waveform set-up parameters for the EFEP were found to be incorrect. The parameters were changed and everything checked-out OK.

- Subtask B SE&I, Software, and Experiment Integration (continued)
 - Continued preparing for Agilent on-site calibrations. We are scheduled the week of May 20th and all team members have been advised.
 - Experiment Development System Digital Side
 - EDS Digital Side Interconnect Finalized.
 - EDS Equipment Layout Finalized.
 - EDS Digital Side Interconnect Parts in House.
 - Kitted the parts for each of the EDS Digital Side Interconnect Cables.
 - Turned over “kitted parts” and build information on all but the Spacewire Cables to GRC Technician for assembly.
 - While conducting the 1553 captures on the BB SDR, we had a few file transfer failures while uploading files using the BCSW upload command. We found that whenever we tried to upload a file with an odd number of bytes it would fail. While an even number of bytes would succeed. We did not see a similar behavior using the OE file upload command. Worked fine that day with either even or odd total bytes. We submitted an issue report to the JPL problem tracking system.
 - Conducted a Verification Test Review for the JPL GPS 48 hour functional and Verification test. The review was successful and no forward actions were required.
 - Met with project team management and resolved the approach we are willing to live with for the baselining of experiment plans which are authored by JPL-based experimenters. We decided to allow JPL experiments to use the basic SCan Testbed format tailored into the a JPL CM released document.
 - Began preparations for test support for the Comm Largo Experiment 9 Scinitallation Hardened GPS development on the GIU.

- Subtask B SE&I, Software, and Experiment Integration (continued)
 - Ground Software
 - Created STARS documentation.
 - Troubleshoot packet drops during file transmission from ISS over primary path.
 - Flight Software
 - Completed SW V&V of PAS Post Ship Upload #1.
 - Continued writing the Experiment Interface and Experiment 3 Requirements Documents, and continued Experiment Interface programming
- Subtask C Flight & Ground Software
 - As of FY2013, flight and ground software activities have transitioned to WBS 01-03.
- Subtask D Mission Operations
 - Completed the TCR inputs and submitted to PTG (ISS pointing).
 - Completed the TRK and XML configuration file inputs for the operational weeks.
 - Completed PFD (power flux density) class analysis for the operational weeks.
 - Prepared weekly PPM inputs and the weekly POIC Briefing. Worked with PPM, Prep-OC, and TCO to add SCAN Testbed activities to timeline and make adjustments based on the granted SN/NEN events.
 - Prepared the scripts and procedures necessary for the operational weeks.

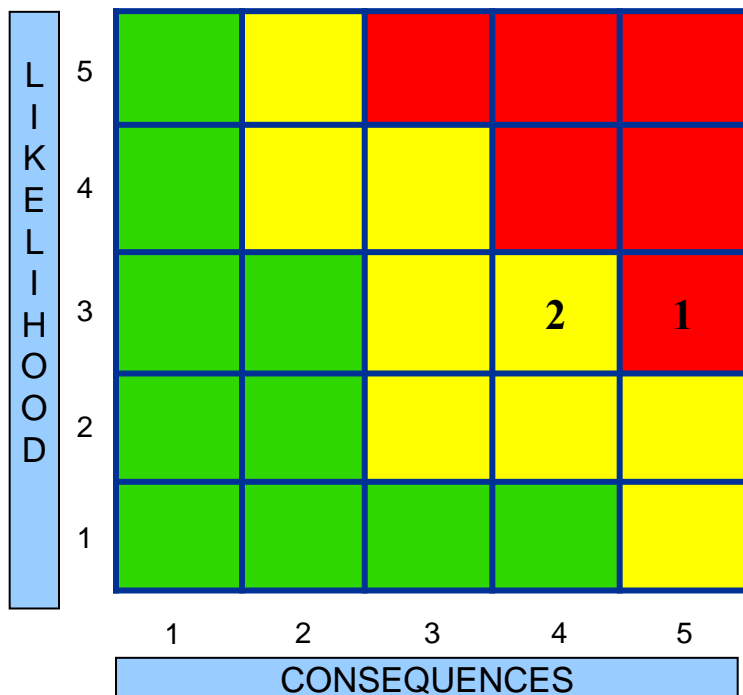
- Subtask D Mission Operations (continued)
 - Initiated the access analysis for the GPS experiments, providing long term predictions for L5 GPS satellite access. This analysis will be updated closer to the experiment day.
 - GPS Experiment 4a: Developed flight procedures for both the 30 minute and 48 hour tests. Ran an abbreviated version of both on the GIU with the JPL experimenter present.
 - PAS Update: Developed the flight operations procedures. Ran on the GIU with Software personnel. Currently updating the procedures with changes resulting from testing. An OCR was submitted to schedule the PAS installation.
 - Working with JSC ADCO to identify and acquire ISS GPS telemetry for the GPS experiment.
 - Mission Ops team is transitioning to Remote IVODS for the voice loops. We currently have four working accounts. The SCAN TESTBED loop (GSFC, WSC, TSC) is now available to us through IVODS. It's name has been changed to SCAN NET.
 - Updated RedMine with the TDRS AT walk off event that occurred on GMT 073 (second TDK simulated event).
 - Completed generating the APS state vector data products as requested by Dale Mortenson for the GMT 073 TDK simulation.
 - Completed the instruction on the second part of the orbital mechanics course for SCAN TB.
 - Completed the instruction for transition training of TCR generation and submittal with the Mission operations group. The APS engineer position should have sufficient backup in this task area.
 - Completed the final structural and editorial corrections to the SCAN Testbed Trajectory Attitude and Antenna Modeling Plan. The revised document has been loaded into CMTS for final processing.

Hardware/Software Deliverables CY 2013

No.	Item Description	Planned Completion Date	Actual Completion Date	Note
a)	Subtask A –CM/DM: Configuration Management and Tracking System (CMTS)	December 31, 2013		Hardware
b)	Subtask B – SE&I: First Verified Post-Ship Flight Software and subsequent upload to the Flight System	April 30,2013	April 22, 2013	Passed Gate #3 Review
c)	Subtask B – SE&I: Verified Ground Software, suitable for use with First Post-Ship Flight Software	April 30,2013	April 22, 2013	Passed Gate #3 Review
d)	Subtask B – SE&I: Second Verified Post-Ship Flight Software and subsequent upload to the Flight System	August 30, 2013		Software
e)	Subtask B – SE&I: Third Verified Post-Ship Flight Software and subsequent upload to the Flight System	November 30, 2013		Software
f)	Radio Frequency and Electronic Hardware Assemblies	December 31, 2013		Hardware

DO-128 Risk Matrix Overview

STATUS AS OF: 02/23/13



LxC Trend	Rank	Approach	Risk Title
→	1	M	Underfunded Operations and Experiments Phase
→	2	M	Experimenter Software Interface

Criticality	L x C Trend	Approach
High	↓ Decreasing (Improving)	M – Mitigate
Med	↑ Increasing (Worsening)	W – Watch
Low	→ Unchanged	A – Accept
	N New	R – Research
		C – Closed